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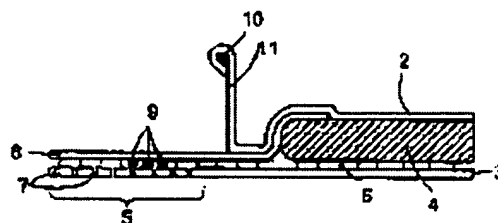
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(54) THROW-AWAY DIAPER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a throw-away diaper which prevents the leakage of excreta, is free of sweating and rashes and is comfortable to a wearing person.

SOLUTION: This throw-away diaper has a liquid permeable front surface sheet 2, a liquid-impermeable rear surface sheet 3, an absorber 4 and side flaps. The side flaps are formed of a rear surface sheet and side sheets 5 and the rear surface sheets 3 of the side flap parts 5 are provided with holes of 25 to 90 μm at a ratio of 1 to 40 pieces/ cm^2 . Further, the water pressure resistance of the side flaps is $\geq 100 \text{ mmH}_2\text{O}$ and the air permeability is in a range of 1.0 to 350 $\text{cc}/\text{cm}^2.\text{sec}$ and the moisture vapor transmission rate 400 to 3000 $\text{g}/\text{m}^2.24 \text{ hr}$.



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CLAIMS

[Claim(s)]

[Claim 1] The part which consists of the surface sheet of liquid permeability, a rear-face sheet of liquid impermeability, and an absorber arranged among both [these] sheets, In the usage **** diaper which has the side flap part which has extended outside the crosswise edges-on-both-sides location of this absorber said side flap part It is formed in the rear-face sheet and top face of liquid impermeability of the sideseat which consists of a nonwoven fabric by which the laminating is carried out. The rear-face sheet of said side flap part 1-40 25-900-micrometer holes /are prepared at a rate of 2 cm. And said side flap part The water pressure-proof measured according to JISL1092 is JIS more than 100mmH(s)2O. The permeability measured according to L1096 by 1.0 - 350.0 cc/cm2 and sec JIS Usage **** diaper characterized by the moisture vapor transmission measured according to Z0208 being 400-3000 g/m2 and 24hr.

[Claim 2] JIS of the rear-face sheet of said usage **** diaper Usage **** diaper according to claim 1 characterized by the opacity measured according to P8138A law being 50% or less.

[Claim 3] The usage **** diaper according to claim 1 or 2 characterized by the area of the rear-face sheet of the side flap part which is used and is occupied to the gross area of the rear-face sheet outside front face of a **** diaper with which the rear-face sheet part of said side flap part and the rear-face sheet part of others in a usage **** diaper were doubled being 15 - 40%.

[Claim 4] The usage **** diaper of claim 1-3 characterized by arranging the circumference of foot flexible elastic member between the sideseat which forms said side flap part, and a rear-face sheet given in any 1 term.

[Claim 5] The rear-face sheet part of said side flap part and the rear-face sheet part of others in a usage **** diaper are the usage **** diaper of claim 1-4 characterized by consisting of a sheet currently formed in one given in any 1 term.

[Claim 6] All the rear-face sheets in said usage **** diaper are usage **** diapers according to claim 5 which 1-40 25-900-micrometer holes /are established only in the rear-face sheet part of a side flap part at a rate of 2 cm, and are characterized by things.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] In more detail, permeability and moisture permeability are given, it is the usage **** diaper *(ed) as a diaper for infants and incontinentia persons, and this invention is [it uses and] a thing about a **** diaper which crowded together, has improved a rash, gave water pressure-proof further, and has improved leakage.

[0002]

[Description of the Prior Art] Conventionally, the technique which constitutes a usage **** diaper by the part which consists of the surface sheet of liquid permeability, a rear-face sheet of liquid impermeability, and an absorber arranged among both [these] sheets, and the side flap part which has extended outside from the side edge location part of an absorber is well-known. Furthermore, a flexible elastic body is installed in a side flap part, and aiming at leakage prevention is also performed by raising the adhesion to the thigh section at the time of usage **** diaper wearing. However, since opaque plastic film is generally used, if the adhesion to the thigh section is high as a rear-face sheet of liquid impermeability, permeability will be checked and it will crowd together with the moisture by a wearer's sweat and excrement.

[0003] the wearer by excrement -- crowding together -- etc. -- in order to mitigate displeasure, using the film which has the permeability which added and extended the filler to thermoplastics as a rear-face sheet of liquid impermeability, and moisture permeability is proposed. However, since the film which has many detailed holes in this case has weak reinforcement, it needs to increase eyes to maintaining reinforcement and becomes that part cost rise. Moreover, forming a side flap part with a permeability material, for example, a nonwoven fabric, is proposed. However, when using a nonwoven fabric, as compared with the polyethylene film usually used as a rear-face sheet, it becomes cost quantity, and since adhesion with a rear-face sheet is required, it becomes one factor of operation degradation.

[0004] The rear-face sheet of liquid impermeability is arranged only to an absorber and its near, a rear-face sheet is covered on the outside of a rear-face sheet, and the usage **** diaper which has arranged the nonwoven fabric of permeability so that a side flap may be formed is indicated by JP.3-50896,Y. When using such a nonwoven fabric, as compared with the polyethylene film usually used as a rear-face sheet, it becomes cost quantity, and since adhesion with a rear-face sheet is required, it becomes one factor of operation degradation. Furthermore, when the sheet which pinches a circumference of foot flexible elastic body was thick or the laminating of many layers was carried out, the elasticity was not fully demonstrated, but the fit nature to a wearer became inadequate, and there was a trouble that will slip down during wear or excrement will leak.

[0005]

[Problem(s) to be Solved by the Invention] The purpose of this invention solves the technical problem which the above-mentioned conventional usage **** diaper has, and can crowd together and fog it, and prevents leakage, and is to offer the usage **** diaper which gives a comfortable feeling of wear.

[0006]

[Means for Solving the Problem] This invention which can attain the above-mentioned purpose includes invention which is indicated below.

[0007] (1) The part which consists of the surface sheet of liquid permeability, a rear-face sheet of liquid impermeability, and an absorber arranged among both [these] sheets, In the usage **** diaper which has the side flap part which has extended outside the crosswise edges-on-both-sides location of this absorber said side flap part It is formed in the rear-face sheet and top face of liquid impermeability of the sideseat which consists of a nonwoven fabric by which the laminating is carried out. The rear-face sheet of said side flap part 1-40 25-900-micrometer holes /are prepared at a rate of 2 cm. And said side flap part The water pressure-proof measured according to JISL1092 is JIS more than 100mmH(s)2O. The permeability measured according to L1096 by 1.0 - 350.0 cc/cm2 and sec JIS Usage **** diaper characterized by the moisture vapor transmission measured according to Z0208 being 400-3000 g/m2 and 24hr.

[0008] (2) JIS of the rear-face sheet of said usage **** diaper P8138A -- (1) characterized by the opacity measured according to law being 50% or less Usage **** diaper given in a term.

[0009] (3) (1) characterized by the area of the rear-face sheet of the side flap part which is used and is occupied to the gross area of the rear-face sheet outside front face of a **** diaper with which the rear-face sheet part of said side flap part and the rear-face sheet part of others in a usage **** diaper were doubled being 15 - 40% A term or (2) Usage **** diaper given in a term.

[0010] (4) (1) characterized by arranging the circumference of foot flexible elastic member between the sideseat which forms said side flap part, and a rear-face sheet Term - (3) Usage **** diaper of a term given in any 1 term.

(5) All the rear-face sheets in said usage **** diaper are (1) characterized by the rear-face sheet part of a side flap part and the rear-face sheet part of others in a usage **** diaper consisting of a sheet currently formed in one. Term - (4) Usage **** diaper of a term given in any 1 term.

[0011] (6) All the rear-face sheets in said usage **** diaper are (5) which 1-40 25-900-micrometer holes /are established only in the rear-face sheet part of a side flap part at a rate of 2 cm, and is characterized by things. Usage **** diaper given in a term.

(7) All the rear-face sheets in said usage **** diaper are usage **** diapers given in (5) terms which 1-40 25-900-micrometer holes are established in all rear-face sheet parts at a rate of 2 cm, and is characterized by things.

[0012] (8) Said usage **** diaper is (1) characterized by arranging the solid gathers which start considering [as the fixed end face section]

near [which extends in the longitudinal direction of this absorber] the edge along with the crosswise edges-on-both-sides section of said absorber. Term - (7) Usage **** diaper given in any 1 term of a term.

(9) Said solid gathers are (8) characterized by being formed from the crosswise both-sides side of said absorber using said liquid permeability surface sheet which extends to the method of outside. Usage **** diaper given in a term.

[0013] (10) Said solid gathers are (8) characterized by using said absorber side edge section of said sideseat which extends from the crosswise both-sides side of said absorber to the method of outside, making it extend to this absorber side, and being formed. Usage **** diaper given in a term.

(11) Said solid gathers are (8) characterized by being liquid impermeability. Usage **** diaper of a term - (10) term given in any 1 term.

[0014] (12) Said solid gathers are (8) which is liquid impermeability and is characterized by being permeability and moisture permeability. Usage **** diaper of a term - (11) term given in any 1 term.

(13) Said solid gathers are (8) characterized by being formed in an absorber side to the inner derrick-down or side flap side at the outside derrick down. Usage **** diaper of a term - (12) term given in any 1 term.

[0015]

[Embodiment of the Invention] The rear-face sheet of liquid impermeability [diaper / of this invention / usage **** / part / side flap], It is formed in the top face from the sideseat which consists of a nonwoven fabric by which the laminating was carried out. The rear-face sheet of a side flap part 1-40 25-900-micrometer holes /are prepared at a rate of 2 cm. And a side flap part JIS The water pressure-proof measured according to L1092 above 100mmH(s)20 JIS The permeability measured according to L1096 is more than 1.0-350.0cc/cm] 2 and sec, and JIS. The moisture vapor transmission measured according to Z0208 is in the range of 400-3000 g/m2 and 24hr.

[0016] Since a side flap part has permeability and moisture permeability while the usage **** diaper of this invention which has such a configuration prevents leakage, **** inside a usage **** diaper is prevented and a comfortable feeling of wear is given.

[0017] The usage **** diaper of this invention is JIS of a rear-face sheet. It is desirable that the opacity measured according to P8138A law is 50% or less. By considering as such a rear-face sheet, the so-called visibility which can see and check excrement by the eye through a rear-face sheet becoming good, and diaper exchange being overdue, and giving a wearer displeasure is lost.

[0018] Furthermore, it is desirable that the rear-face sheet surface product of the side flap occupied to the gross area of the absorptivity goods outside front face which comes to add the area of the rear-face sheet of the side flap section and the area of the rear-face sheet under an absorber is 15 - 40%. By carrying out the permeability and occupancy area of a side flap part in such range, the usage **** diaper which was more excellent in a feeling of wear, prevented **** inside a diaper, and the excrement from a side flap oozed further and prevented ** can be obtained.

[0019] Moreover, the side flap part by which the flexible elastic member has been arranged fits the circumference of a wearer's foot good, since it has permeability and moisture permeability further, **** inside a diaper is prevented, and a comfortable feeling of wear can be given.

[0020] In the usage **** diaper of this invention, especially the thing for which the water pressure-proof, permeability, and moisture vapor transmission of a side flap part are controlled is important. It mainly depends for water pressure-proof, permeability, and moisture vapor transmission on the bore diameter of the rear-face sheet of liquid impermeability, the rate per unit area and the eyes of a nonwoven fabric, the magnitude of fiber interspace spare time, and voidage. The bore diameter of a rear-face sheet is large, and, as for permeability and moisture vapor transmission, the direction with many rates per unit area becomes high. On the contrary, the bore diameter of a rear-face sheet is small, and, as for water pressure-proof, the direction with few rates per unit area becomes high.

[0021] Moreover, the eyes of a nonwoven fabric are low, fiber interspace spare time is large, and permeability and moisture vapor transmission become [the one where voidage is higher] higher. On the contrary, eyes are high, fiber interspace spare time is small, and, as for water pressure-proof, the one where voidage is lower becomes high. The side flap part which has water pressure-proof, desired permeability, and desired moisture vapor transmission is attained by choosing suitably a rear-face sheet and the nonwoven fabric used for a side flap.

[0022] If the side flap section has high permeability and moisture vapor transmission, the air of diaper inside and outside and receipts and payments of humidity can become free, consequently the rise of the humidity in a diaper by excrement or sweat can be suppressed, and a comfortable feeling of wear can be given to a wearer. On the other hand, also when a wearer excretes liquid excrement, it does not catch up with the rate of absorption of an absorber but excrement overflows on a side flap since the side flap section has high water pressure-proof, excrement does not ooze out through the side flap section.

[0023] In the usage **** diaper of this invention, a side flap part is formed from the rear-face sheet of liquid impermeability, and the sideseat which consists of a nonwoven fabric by which the laminating was carried out to the top face. The sideseat which forms a side flap part can use the nonwoven fabric which has the permeability which consists of polyethylene, polypropylene, polyester, and a synthetic fiber that used other thermoplastics as the raw material. As a process of the nonwoven fabric to be used, the nonwoven fabric which carried out the laminating of the melt blow nonwoven fabric is mentioned to one side or both sides of dry process, a wet method, the span ball-race method, the card method, the span bond method, the melt blowing method, and a span bond nonwoven fabric, for example.

[0024] The rear-face sheet which forms a side flap part is formed with polyethylene, polypropylene, polyester, and the plastic film that extends what scoured the component of an inorganic bulking agent and others to other resin, and was crowded to it, and is obtained.

[0025] Moreover, the rear-face sheet of this invention adjusts the blending ratio of coal of resin, and extent of extension, and is JIS. The opacity at the time of measuring according to P8138A law has 50% or less of thing used. If opacity becomes high exceeding 50%, since the visibility over excrement will worsen, it is not desirable. [0026] 1-40 25-900-micrometer holes /are established in the rear-face sheet of the side flap part of this invention usage **** diaper at a rate of 2 cm, and 2-20 100-500-micrometer holes /are more preferably established in it at a rate of 2 cm. As the perforation approach to a rear-face sheet, the shape of a dot, in the shape of alternate, etc., although a hole is made in a predetermined field, it does not limit especially with a hot needle roll, a suction roll, etc. As magnitude of the hole of a rear-face sheet, **** inside the diaper by sweat or urine cannot fully be prevented by less than 25 micrometers. On the other hand, if the magnitude of a hole becomes large exceeding 900 micrometers, since excrement may ooze out from a side flap, it is not desirable. Moreover, if the rate of the hole per unit area increases exceeding 2 40 pieces /cm, since there is little area which constitutes a sheet, it does not have sufficient reinforcement.

[0027] It is joined by heat adhesion of the shape of the junction by adhesives, such as the shape of the shape of the shape of a fog, reticulated, and a dot, or a spiral, or reticulated, and a dot etc., and the sideseat and rear-face sheet of a side flap part are constituted so that the permeability of this part and moisture permeability may not be checked.

[0028] As for the area of the rear-face sheet of the side flap part occupied to the gross area of the diaper outside front face which applied the area of the rear-face sheet part of others of a **** diaper using the area of the rear-face sheet of a side flap part, it is desirable that it is in 15 - 40% of range. Area of a side flap cannot fully prevent **** inside the diaper by sweat or urine at less than 15%. On the other hand, if the area of a side flap becomes high exceeding 40%, since excrement may ooze out from a side flap, it is not desirable.

[0029] Setting to the usage **** diaper of this invention, a side flap part is JIS. It is desirable that the water pressure-proof measured according to L1092 is more than 100mmH(s)2O, and it is more desirable that it is above in 200mmH2 O. After water pressure-proof leaked on the side flap and liquid excrement had come out under by 100mmH(s)2O, when a pressure is applied, liquid excrement oozes out ***** in a side flap.

[0030] Moreover, JIS of a side flap part As for the permeability measured according to L1096, it is desirable that it is in the range of 1.0 - 350.0 cc/cm2 and sec, and it is more desirable that it is in the range of 2.0 - 200.0 cc/cm2 and sec. Permeability cannot fully prevent **** inside the diaper by sweat or urine by under 1.0 cc/cm2 and sec. On the other hand, if permeability becomes high exceeding 350 cc/cm2 and sec, since there are few fiber numbers which constitute a sheet, it does not have sufficient reinforcement. Moreover, since the sheet is hard, what performed immobilization with a binder etc. in order to raise sheet reinforcement is inferior to fit nature.

[0031] Furthermore, JIS It is desirable that the moisture vapor transmission measured according to Z0208 is in the range of 400-3000 g/m2 and 24hr. and it is more desirable that it is in the range of 440-2500 g/m2 and 24hr. The displeasure depended for steaming to a wearer will be given until the humidity in a diaper falls, since it is difficult for moisture vapor transmission to lower quickly the humidity in a diaper which rose by excrement or sweat in less than 2-24 hr(s) of 400 g/m. On the other hand, since the voidage in the magnitude of fiber interspace spare time and the whole nonwoven fabric becomes high, that to which moisture vapor transmission exceeds 3000 g/m2 and 24hr cannot obtain high water pressure-proof.

[0032] In the usage **** diaper of this invention, a circumference of foot flexible elastic member is arranged between the rear-face sheet which forms a side flap part, and a sideseat. As a circumference of foot flexible elastic member, the shape of yarn, Taira-like rubber, etc. of an urethane system and a natural system can use the flexible elastic body used for the usual usage **** diaper as it is, adhesion immobilization is carried out to a predetermined field with hot melt adhesive etc. in the state of expanding, and these flexible elastic members can give sufficient fit nature to a wearer, respectively.

[0033] In the usage **** diaper of this invention, sheets of liquid permeability, such as a nonwoven fabric which consists of polyethylene, polypropylene, polyester, and a synthetic fiber that used other thermoplastics as the raw material as a surface sheet of liquid permeability, can be used.

[0034] The absorber used for the usage **** diaper of this invention is not especially restricted, although it has the liquid holdout which consists of a curdy pulp and superabsorbency high polymer, a synthetic fiber, a thermofusion component, adhesives, a hydrophilic sheet, etc. The configurations of said absorber should just be configurations in which there is especially no limit and length from the crotch to the cuff is fitted, such as a sandglass mold, a rectangle, and a T character mold. An absorber may be compressed if needed. The layer independent which uses curdy pulp as a principal component is sufficient as the configuration of an absorber. Moreover, the layer which mixed the superabsorbency high polymer to homogeneity at curdy pulp may be prepared in the lower part of this layer. Furthermore, a superabsorbency high polymer may be sprinkled in the shape of a layer between this bilayer. Still a lot of urine can be absorbed and held by carrying out like this. As mentioned above, the lamination of the absorber of this invention may become two or more layers if needed.

[0035] As curdy pulp, what made the sheet of chemical pulp, mechanical pulp, or chemical machinery pulp the shape of cotton with the grinder is mentioned. As a pulp raw material, not only a needle-leaf tree but non-wood pulp, such as wood pulp of a broad-leaved tree and hemp, is applied. the absorber which makes a pulp raw material the purpose -- independent or plurality -- mixing -- a laminating may be carried out and you may use. With curdy pulp, a synthetic fiber, a thermofusion component, adhesives, etc. may be contained, and thermocompression bonding of 3 - 60% of the weight of the heat welding matter may be mixed and carried out. As a thermofusion component, polypropylene, polyethylene, polyester, the poly vinylidene, acrylic resin, Nylon, etc. are mentioned. Or the bicomponent fiber which consists of two or more components, such as polyester, polypropylene, and polyethylene, is sufficient.

[0036] As a superabsorbency polymeric material, although a starch system, a cellulose system, a synthetic polymer system, etc. are mentioned, for example, the urine, the body fluid, and water of 20 times or more of a self-weight are absorbed, and the thing of a sodium polyacrylate system is the most desirable from the point of absorptivity ability. A superabsorbency high polymer may be sprinkled in the shape of a layer, and may be distributed over curdy pulp at homogeneity or an ununiformity.

[0037] Moreover, the layer which diffuses a wearer's excrement early more may be used between a surface sheet and an absorber. The nonwoven fabric of liquid permeability which consists of polyester, polypropylene, etc., textile fabrics, porous plastic film, porous form, reticulated form, etc. can be used for this diffusion layer. Although especially the manufacture approach and configuration are not limited, what is necessary is just the material which can shift to an absorber, without making the urine and excrement which passed the surface sheet remain quickly.

[0038] The usage **** diaper of this invention can have the solid gathers which start considering [as the fixed end face section] near [which extends in the longitudinal direction of this absorber] the edge along with the crosswise edges-on-both-sides section of an absorber. Solid gathers can be formed from the crosswise both-sides side of said absorber using said liquid permeability surface sheet which extends to the method of outside. Moreover, solid gathers may use said absorber side edge section of said sideseat which extends from the crosswise both-sides side of an absorber to the method of outside, may be made to extend to this absorber side, and may be made to form. As for solid gathers, it is desirable that it is liquid impermeability, and it is desirable that they are permeability and moisture permeability. It can form in any gestalt of an outside derrick down to an inner derrick-down or side flap side to an absorber side, and solid gathers are **.

[0039]

[Example] Although this invention is explained with reference to an accompanying drawing below at a detail, this invention is not restricted at all by these.

[0040] Drawing 1 is the top view of the usage **** diaper of this invention. In drawing 1, the usage **** diaper 1 of this invention consists of the surface sheet 2 of liquid permeability, a rear-face sheet 3 of liquid impermeability, and an absorber 4 and the side flap part 5. And the side flap part 5 is formed from the sideseat 8 which consists of a rear-face sheet 3 and a nonwoven fabric, and the circumference of foot flexible elastic member 9 is arranged among both sheets (refer to drawing 2). Moreover, the flexible elastic member 10 is arranged at the edges on both sides of the surface sheet 2, and the solid gathers 11 are formed.

[0041] moreover, in the field which is equivalent to circumference opening of a foot in the side flap part 5 In the field which the scooping

out section 12 for forming circumference opening of a foot is formed, and is equivalent to circumference opening of the waist at the edge section of the usage **** diaper 1 the circumference of the waist flexible elastic member 13 arranges -- having -- **** -- further -- later self -- time -- 14 -- the FASUNINGU tape 15 of a pair is arranged at the longitudinal direction side edge of the edge section, and the reinforcing tape 17 is arranged in the central field near the edge section of 16 at the past time. in addition, the FASUNINGU tape 15 -- minding -- later self -- time -- 16 -- joining -- things -- circumference opening of the waist, and a pair -- circumference opening of a foot is formed.

[0042] Drawing 2 is the cross-sectional view showing the condition of having cut the usage **** diaper 1 of this invention shown in drawing 1 along with the X-X' line perpendicular to a longitudinal direction. In drawing 2, the usage **** diaper 1 consists of the surface sheet 2 of liquid permeability, a rear-face sheet 3 of liquid impermeability, an absorber 4 arranged among both [these] sheets, and a side flap part 5 which extends outside from the side edge section of an absorber. In this case, the sideseat 8 is arranged to near the side edge of an absorber 4, and the side flap part 5 is formed from the sideseat 8 by which the laminating was carried out to the rear-face sheet 3 on this, and the circumference of foot flexible elastic member 9 is arranged among both sheets.

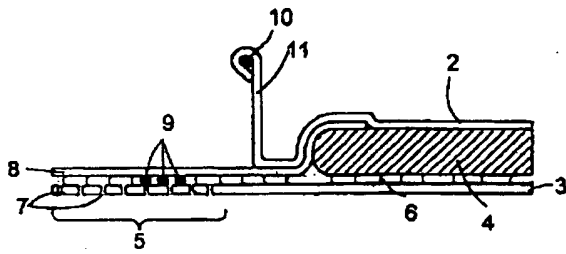
[0043] Moreover, the flexible elastic member 10 is arranged at the side edge of the surface sheet 2, and the solid gathers 11 which stand up up are formed by making a sideseat 8 top into a standing up point. In addition, although the example to which the end face section is located out of an absorber 4 was shown as solid gathers, it is not necessary to be necessarily out of an absorber, and you may be on an absorber 4.

[0044]

[Effect of the Invention] As mentioned above, in the usage **** diaper of this invention, since the water pressure-proof of a side flap part can prevent **** by sweat or urine and can make leakage prevent more than 100mmH(s)2O using the rear-face sheet and sideseat which were specified because permeability makes it 1.0 - 350 cc/cm2 and sec and moisture vapor transmission makes it 400-3000 g/m2 and 24hr, a wearer can be made to mitigate the displeasure by excrement and a comfortable feeling of wear is obtained.

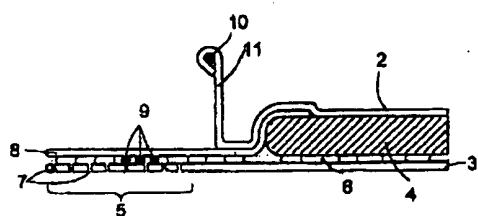
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